We claim:

1.   A DC voltage generator comprising:

a digital pulse modulation (DPM) generator for generating a periodic bit-stream encoding a DC voltage level in the average value of the bit-stream; and

an analog averaging circuit for receiving and decoding the periodic bit-stream for generating an average DC voltage.

2.   The DC voltage generator of claim 1 wherein the DPM generator comprises a memory based periodic bit-stream generator circuit.

3.   The DC voltage generator of claim 2 wherein the DPM generator comprises a programming means for selecting the bit-stream encoding the DC level.

4.   The DC voltage generator of claim 1 wherein the DPM generator comprises a pulse density modulation (PDM) generator circuit for encoding the DC level in a PDM periodic bit-stream.

5.   The DC voltage generator of claim 1 wherein the DPM generator comprises a pulse width modulation (PWM) generator circuit for encoding the DC level in a PWM periodic bit-stream.

6.   The DC voltage generator of claim 1 wherein the DPM generator is memory based and comprises:

a circular shift register having means for receiving a series of bits encoding a DC level in a bit-stream; means for serially outputting the bits and means for circling the series of bits output to the means for receiving.

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7.   The DC voltage generator of claim 6 wherein the DPM generator further comprises a programming means for selecting the series of bits encoding the DC level, said programming means providing the bit-stream to the means for receiving of the circular shift register.

8.   The DC voltage generator of claim 6 wherein the bit-stream is a pulse density modulation bit-stream.

9.   The DC voltage generator of claim 6 wherein the bit-stream is a pulse width modulation bit-stream.

10.   The DC voltage generator of claim 7 wherein the programming means comprises a software based $\Sigma\Delta$ modulator.

11.   The DC voltage generator of claim 1 wherein the DPM generator is memory based and comprises a linear feedback shift register.

12.   The DC voltage generator of claim 4 wherein the PWM generator is memory based and comprises:

     a counter for outputting a count; and

     a comparator for receiving the count, comparing the count to a reference value, and outputting the PWM periodic bit-stream in response to the comparison of the count and reference value.

13.   The DC voltage generator of claim 1 wherein the DPM generator is an automated test equipment.

14.   The DC voltage generator of claim 1 wherein the analog averaging circuit comprises a capacitor and resistor for generating the average DC voltage.

15.   The DC voltage generator of claim 1 further comprising control means for varying the periodic bit-stream whereby the DC voltage level is controlled for temperature compensation.

16.   The DC voltage generator of claim 15 wherein the control means comprises means for varying a bit rate of the periodic bit-stream.

17.   The DC voltage generator of claim 1 further comprising asynchronous control means for asynchronously controlling the DPM generator.

18.   The DC voltage generator of claim 1 wherein the DPM generator and analog averaging circuit are co-integrated on a chip.

19.   A method of generating a DC voltage comprising the steps of:

generating a periodic bit-stream encoding a DC voltage level in an average value of the periodic bit-stream; and

averaging the periodic bit-stream to decode and produce the DC voltage.

20.   The method of claim 19 wherein the step of generating comprises programming the periodic bit-stream in a memory and serially outputting the bit-stream.

21.   The method of claim 20 wherein the memory comprises a circular shift register.

22.   The method of claim 20 wherein the memory comprises a linear feedback shift register.

23.   The method of claim 20 wherein the memory is provided by an automated test equipment.

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24.   The method of claim 20 wherein the periodic bit-stream is a pulse width modulation or a pulse density modulation bit-stream.

25.   The method of claim 19 wherein the step of generating comprises the steps of:

Cyclically counting a counter value;

Comparing the counter value to a reference value; and

Outputting a bit-stream value in response to the comparison of the counter value and reference value.

26.   The method of claim 19 wherein the step of averaging comprises filtering the periodic bit-stream.

27.   The method of claim 19 further comprising the step of controlling the periodic bit-stream to control the DC voltage level for temperature compensation.

28.   The method of claim 27 wherein the step of controlling comprises varying a bit rate of the periodic bit-stream.

29.   The method of claim 19 further comprising the step of asynchronously controlling the generation of the periodic bit-stream.